

CLAIMS

1. A semiconductor device comprising:

a semiconductor substrate, having a photodetecting unit formed on one surface, a thinned portion formed by etching a region, opposing the photodetecting unit, of another surface, and first electrodes disposed on the one surface at an outer edge of the thinned portion and electrically connected to the photodetecting unit;

a wiring substrate, disposed to oppose the one surface side of the semiconductor substrate and having second electrodes connected via conductive bumps to the first electrodes; and

a resin, filling a gap between the wiring substrate and the outer edge of the thinned portion to reinforce the strength of bonding of the respective first electrodes and the respective second electrodes with the conductive bumps; and

wherein the resin is a resin sheet that is formed in advance so as to surround a periphery of a gap between the thinned portion and the wiring substrate except for portions of the periphery.

2. The semiconductor device according to Claim 1, wherein the photodetecting unit has a plurality of pixels that are arrayed one-dimensionally or two-dimensionally.

3. A semiconductor device manufacturing method comprising the steps of:

preparing a semiconductor substrate, having a photodetecting unit formed on one surface, a thinned portion formed by etching a region, opposing the photodetecting unit, of another surface, and first electrodes disposed on the one surface at an outer edge of the thinned

portion and electrically connected to the photodetecting unit;

preparing a wiring substrate, disposed to oppose the one surface side of the semiconductor substrate and having second electrodes connected via conductive bumps to the first electrodes;

5 adhering a solid resin sheet onto a predetermined region on the other surface of the semiconductor substrate; and

thermocompression bonding the semiconductor substrate, with the resin sheet, to the wiring substrate; and

10 wherein the predetermined region is set to surround a periphery of a gap between the thinned portion and the wiring substrate except for portions of the periphery.